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TAXONOMIC OVERVIEW OF *BRICKELLIA COULTERI* (ASTERACEAE: EUPATORIEAE), INCLUDING *B. BRACHIATA* AND *B. MEGALODONTA*

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ABSTRACT

Brickellia coulteri, a species of northeastern México and adjacent U.S.A., is comprised of three, largely allopatric, regional varieties: var. **adenopoda** (B.L. Robins.) B. Turner (which includes *B. megalodonta* Greenm.); var. **brachiata** (A. Gray) B. Turner; and var. *coulteri*. The var. *adenopoda* occurs in southern Baja California and southern Sonora, southward along the Pacific slopes to Michoacán; var. *brachiata* largely occurs in the more montane portions of northeastern Sonora, Chihuahua, Coahuila and adjacent U.S.A.; var. *coulteri* is largely confined to the lower elevations of the Sonoran Desert Regions of Baja California and eastern Sonora. At or near regions of contact, intergradation occurs.

KEY WORDS: *Brickellia*, Asteraceae, Eupatorieae, México.

Brickellia coulteri is a commonly collected species of northeastern México and closely adjacent U.S.A. Robinson (1917) recognized *B. coulteri* as a widespread, highly variable species, without infraspecific categories, although he did recognize a typical "forma," which included those plants with glandular hairs on the ultimate peduncles, and a "forma" *eglandescens*, which he applied to those plants having crisp eglandular hairs on the peduncles. McVaugh (1972; 1984) reduced *B. megalodonta* (which Robinson recognized) to varietal status under *B. coulteri*, and in the present paper, I have reduced Gray's *B. brachiata* to varietal status. The latter is largely composed of those plants referred to by Robinson as "forma *eglandescens*" and occurs primarily in the interior montane portions of the Sonoran and Chihuahuan deserts. These several taxa are largely allopatric and intergrades between them occur, including forms with both glandular and eglandular hairs intermixed.

In my forthcoming treatment of *Brickellia* for México, I will recognize three regional varieties within *B. coulteri*, as indicated in the key that follows and by the distributional maps shown in Figure 1. The latter was largely compiled from approximately 200 sheets, most of these deposited at LL and TEX, but also includes specimens housed at GH and WIS. The Mexican states indicated in the keys and elsewhere are abbreviated by the first three letters of the states concerned.

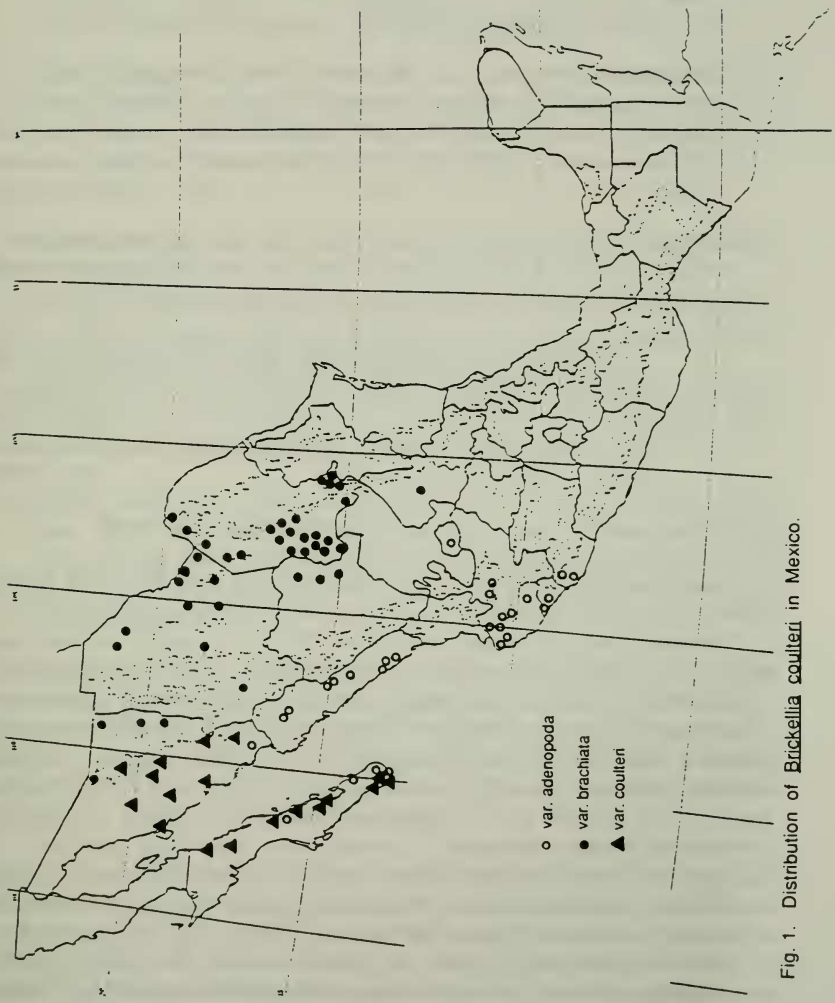

Fig. 1. Distribution of Brickellia coulteri in Mexico.

Brickellia coulteri A. Gray, *Pl. Wright.* 1:86. 1852.

Three varieties recognized as follows:

1. Mid stem leaves on primary stems mostly 2-4(5) cm long; capitulescence of erect or narrowly ascending branches, the ultimate peduncles mostly 0.5-1.5(2.0) cm long; peduncles usually without glandular hairs, sometimes intermixed with both glandular and eglandular hairs or rarely glandular throughout; ne Son, Chi, Coa, Dur ..... var. *brachiata*

1′ Mid stem leaves on primary stems mostly 4-6 cm long; capitulescence of broadly to widely ascending branches, the ultimate peduncles mostly 1.5-4.0 cm long; peduncles mostly glandular pubescent, rarely not . (2)

2. Florets mostly 8-12 per head; peduncles widely divergent, mostly 2-4 cm long; s Baj, s Son, Sin, Dur, Nay?, Jal, Col, Agu and Mic ..... var. *adenopoda*

2′ Florets mostly 13-21 per head; peduncles mostly ascending, 1.5-2.5 cm long; n Baj, s Baj, w Son ..... var. *coulteri*

Brickellia coulteri A. Gray var. *coulteri. Pl. Wright.* 1:86. 1852.

Found in n Baj, s Baj, Son and adjacent U.S.A., mostly in the Sonoran Desert regions, dry hillsides and sandy washes, 10-1000 m; October-March.

Sprawling, brittle stemmed shrub or shrublet to 1 m high; mid stem leaves mostly 4-6 cm long, 3-4 cm wide; petioles mostly 1-3 cm long; blades more or less hastate, sparsely pubescent to glabrate; heads mostly in open terminal cymes, the ultimate peduncles usually ascending, 1.5-2.5 cm long, mostly glandular pubescent, or these intermixed with nonglandular hairs; involucre turbinate, the bracts usually abruptly apiculate, rarely not; florets 13-22 per head; achenes 3-4 mm long, the pappus of 35-45 white bristles 5-7 mm long; chromosome number, $n=9$ pairs.

Southward along the Pacific slopes, the variety grades into var. *adenopoda*; to the east, it grades into var. *brachiata*. Type material of this taxon was presumably collected in Baja California by Coulter (no. *273*). Two heads of the holotype are to be found in a packet at GH. The heads are borne on glandular peduncles and each contained about 20 florets (as determined by receptacular scars). In northern Sonora, this variety grades into var. *brachiata*; indeed, I would call most of the specimens in Arizona var. *brachiata*, those in the southwestern part of the state showing considerable gradation toward var. *coulteri*.

Brickellia coulteri A. Gray var. **adenopoda** (B.L. Robins.) B. Turner, *comb. nov.* BASIONYM: *Brickellia brachiata* A. Gray var. *adenopoda*

B.L. Robins., Mem. Gray Herb. 1:63. 1917. TYPE: MÉXICO. Sinaloa: vicinity of San Blas, 24 Mar 1914? (year not legible), *J.N. Rose, et al. 13374* (Fragment of holotype: GH!; Isotype: GH!).

Brickellia megalodonta Greenm., Proc. Amer. Acad. Arts 40:34. 1904. *Brickellia coulteri* A. Gray var. *megalodonta* (Greenm.) McVaugh, Contr. Univ. Michigan Herb. 9:378. 1972. TYPE: MÉXICO. Jalisco: Guadalajara, 22 Sep 1903, *E.W.D. Holway 5022* (HOLOTYPE: GH!).

Found in s Baj, s Son, Sin, Nay?, Jal, Col, Agu and Mic, mostly Pacific slopes in tropical deciduous forests, 0-1600 m; October-January.

McVaugh reduced this taxon to varietal rank without recognition that the earlier epithet, var. *adenopoda*, was available. He correctly noted the range if the taxon, however, and most of the characters that marked it.

Specimens from Baja California (Figure 1), mostly on deposit at GH, have more stiffly divaricate branches in the capitulescence, otherwise there is little else to distinguish these from their mainland counterparts.

Brickellia coulteri A. Gray var. **brachiata** (A. Gray) B. Turner, *comb. nov.* BASIONYM: *Brickellia brachiata* A. Gray, Proc. Amer. Acad. Arts 21:385. 1886. TYPE: MÉXICO. Chihuahua: San Miguel, 27° 01′ N, 107° 38′ W (McVaugh 1977), Aug-Nov 1885, *Edward Palmer 169* (HOLOTYPE: GH!).

Found in ne Son, Chi, Coa, Dur, n Zac?, San and adjacent U.S.A., mostly Sonoran and Chihuahuan deserts in dry rocky soils, 700-2000 m; all seasons.

Erect divaricately branched shrublet or shrub to 1.5 m high; much resembling var. *coulteri*, but the leaves mostly smaller and the ultimate peduncles mostly shorter with usually eglandular hairs (rarely with glandular trichomes throughout); chromosome number, $n=9$ pairs.

The variety grades into var. *coulteri* to the northwest, especially in the adjacent regions of the U.S.A. Robinson (1917) retained this taxon as a species but added to it the var. *adenopoda*. Actually, the var. *brachiata* is closer to var. *coulteri* than the latter is to var. *adenopoda*, there being considerable intergradation between these in northern Sonora and southern Arizona. *Brickellia coulteri* var. *adenopoda* intergrades with var. *coulteri* in southern Sonora and adjacent Sinaloa. It should also be mentioned that the involucre of the type specimen of var. *brachiata* is rather unusual of the variety, in that the outer bracts are somewhat scarious and compact with obtuse apices. Nearly similar involucral bracts occur sporadically over the range of the species.

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